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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/824,547	04/15/2004	Yoon Ho Song	P69659US0	6529
136	7590	08/18/2005	EXAMINER	
JACOBSON HOLMAN PLLC 400 SEVENTH STREET N.W. SUITE 600 WASHINGTON, DC 20004			VO, TUYET THI	
			ART UNIT	PAPER NUMBER
			2821	

DATE MAILED: 08/18/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/824,547

Applicant(s)

SONG ET AL.

Examiner

Tuyet Vo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 15 April 2004.  
2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.  
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.  
4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.  
6) ☒ Claim(s) 1-30 is/are rejected.  
7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.  
8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.  
10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☒ All b) ☐ Some \* c) ☐ None of:  
1. ☒ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)  
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)  
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date April 15, 2004.  
4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.  
5) ☐ Notice of Informal Patent Application (PTO-152)  
6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, **changing a pulse amplitude and/or pulse width of the data signal applied to the field emitter through controlling of the control device and the gate hole of the gate plate has the number corresponding to each of the dots** must be shown or the feature(s) canceled from the claims 5, 9, 20 and 24. No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either "Replacement Sheet" or "New Sheet" pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

### *Specification*

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2. **The title of the invention is not descriptive.** A new title is required that is clearly indicative of the invention to which the claims are directed.

The specification has been checked to the extent necessary to determine the presence of all possible minor errors. However, the applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

***Claim Rejections - 35 USC § 112***

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claims 9 and 24 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for **composing of dots divided into a plurality of regions, does not reasonably provide enablement for each gate hole of the gate plate has the number corresponding to each of the dots.** The specification does not enable a number of gate holes of the gate plate corresponding to a number of each dot of emitter.

5. Claims 10-16 and 25-30 are rejected due to their virtual dependency on the defective claims 9 and 24. Any correction made for claims 9 and 24 will eliminate same problem toward the claims 10-16 and 25-30 as well.

***Claim Rejections - 35 USC § 102***

6. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this

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subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

7. Claims 1-3, 5, 17, 18 and 20 are rejected under 35 U.S.C. 102(e) as anticipated by Hofmann et al. (US Pub. 2003/0184213) hereinafter Hofmann or, in the alternative, under 35 U.S.C. 103(a) as obvious over the admitted prior art shown in Fig. 2.

Regarding claims 1 and 17, Hofmann discloses a field emission display, comprising:  
an anode plate having a transparent electrode (ITO) on a substrate (112) and a phosphor (PHOSPHORS) on a portion of the transparent electrode, in each pixel (Fig. 4B);  
a gate plate having gate holes and a gate electrode (15) around the top of the gate holes, said gate holes having an inclined inner wall; and  
spacers (24) for supporting the gate plate between the cathode plate and the anode plate, wherein the field emitter of the cathode plate is constructed to be opposite to the phosphor of the anode plate through the gate holes, and is formed by vacuum packaging ([0027]), wherein the cathode plate inherently having row/column signal lines for which row/column addressing is possible on a substrate, and pixels each defined by the row signal line and the column signal line.

A lack of belt shape row/column signal lines and film shape field emitter in Hofmann are clearly fulfilled by the admitted prior art shown in Figure 2, in that, a cathode plate having row/column signal lines (21S, 21D) of a belt shape for which row/column addressing is possible on a substrate, and pixels each defined by the row signal line and the column signal line, wherein each pixel has a film-shape field emitter (22) and a control device for controlling the field emitter, having at least two terminals connected to the row/column signal lines and one terminal connected to the film-shape field emitter.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the belt shape control signal lines and film shape field emitter into the Hofmann field emission display in order to enhance the signal lines and the emitter in rely manner while compacting the field emission display as desire. Such implementation is considered as a routine skill in the art.

Regarding claims 2, 3 and 18, Hofman in view of the admitted prior art further discloses substantially the claim invention and Hofmann further discloses the anode plate, the cathode

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plate and the gate plate are formed of different transparent insulating substrates (112, INSULATOR, SILICON, fig. 4B).

Regarding to claims 5 and 20, Hofman in view of the admitted prior art further discloses substantially the claim invention and the admitted prior art further discloses data signals (21, 23) applied to the field emitter (Fig. 2) being inherently adjusted by the control device for optimum image.

***Claim Rejections - 35 USC § 103***

8. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 4, 6-8, 19 and 21-23 are rejected under 35 U.S.C. 103(a) as anticipated by Hofmann in view of the admitted prior art as applied toward claims 1 and 17, and further in view of Konishi et al. (US Pat. 6,580,223), hereinafter Konishi.

Regarding claims 4 and 19, Hofman in view of the admitted prior art discloses substantially the claim invention as noted above except for a black matrix at a given region between the phosphors of the anode.

Konishi discloses a field emission display (Fig. 82) comprising a black matrix (23) at a given region between the phosphors (22) of the anode (col. 1, lines 57-64).

It would have been obvious to one having ordinary skill in the art at the time the invention was made to utilize the black matrix as taught by Konishi into the combination of Hofman and the admitted prior art field emission display in order to preventing optical crosstalk formed on the remaining portion of the anode.

Regarding claims 6, 7, 21 and 22, the combination of Hofmann, the admitted prior art and Konishi discloses substantially the claim invention as Konishi further discloses a field emission

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emitter is composed of a diamond carbon (col. 11, lines 23-67), wherein a thin film transistor for controlling the field emitter (Figs. 1-10).

Regarding claims 8 and 23, the combination of Hofmann, the admitted prior art and Konishi discloses substantially the claim invention as Konishi further discloses a DC voltage is applied to the gate electrode to induce an electron emission from the film-shaped field emitter in the cathode plate; the emitted electrons are accelerated with high energy by applying a DC voltage to the transparent electrode of the anode plate; and scan and data signals are addressed to the control device of the field emitter in each pixel of the cathode plate, whereby the control device of the field emitter controls the electron emission of the field emitter to represent images (Figs. 3, 23 and 24).

#### ***Allowable Subject Matter***

10. Merit of allowability or commenting about the prior art toward claims 9-16 and 24-30 will be provided according to the applicant's reply to this office action.

#### ***Citation of pertinent prior art***

11. The prior art made of record and not relied upon is considered pertinent to applicants' disclosure.

Cathey, Jr. et al. (US Pat. 6,507,329) discloses light insensitive resistor for current limiting of field emission displays.

Rasmussen (US Pub. 2004/0212315) discloses method and apparatuses for providing uniform electron beams from field emission displays.

Rasmussen (US Pub. 2004/0027050) discloses black matrix for flat panel field emission displays.

Xia (US Pub. 2002/0047588) discloses focusing electrode for field emission displays and method.

#### ***Correspondence***

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Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tuyet Vo whose telephone number is 571 272 1830. The examiner can normally be reached on Mon-Fri.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Don Wong can be reached on 571 272 1834. The fax phone numbers for the organization where this application or proceeding is assigned are 703 872 9306 for regular communications and for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 571 272 2800.

Information regarding the status of an application or status information for publishing/unpublishing applications may be obtained from the Patent Application Information Retrieval (PAIR) system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the PAIR system, contact the Electronic Business Center (EBC) at toll free 866-217-9197.

A handwritten signature in black ink, appearing to read 'Tuyet Vo', is written over a horizontal line.

Tuyet Vo

Primary Examiner

August 08, 2005